

VISIBLE LIGHT PRODUCTS SPECIFICATION

HPTLB6-5xK05x



Drawn by	Checked by	Approved by



DATE:2011/9/6

REV:D



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

HUEY JANN High Power 0.5W LED is made of hi-eff AS/TS GaInN chips with precise package technique which makes excellent heat dissipation to reach the advantages of high luminous efficiency, low decay, and long endurance. Now we have these colors available: red, green, blue, white, yellow and infrared.

FEATERUS

- Instant light
- Long operating life
- Superior ESD defense
- Low voltage DC operated
- More energy efficient than incandescent and most halogen lamps

TYPICAL APPLICATIONS

- Architectural detail lighting
- Portable flashlight
- Reading lights
- Medical applications
- LCD backlights
- Beacon lights
- Decoration lights



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

Explanation of Part Number:

H P TLB6 - 5 xK 05 x
① ② ③ ④ ⑤ ⑥ ⑦

1.H: Huey Jann

2.P: High power LED Type

3.Shape distinguish:

TLB6: 5050 type

4. Appearance:

1:White Diffusion

4:Water Clear

5:White Diffusion

5.Color number:

3K: Green

4K: Yellow

5K: Red

8K: Blue

9K: White

6.Power type:

Non: 1W

05: 0.5W

3: 3W

5: 5W

7.Color kind:

G: Green

Y: Yellow

R: Red

B: Blue



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

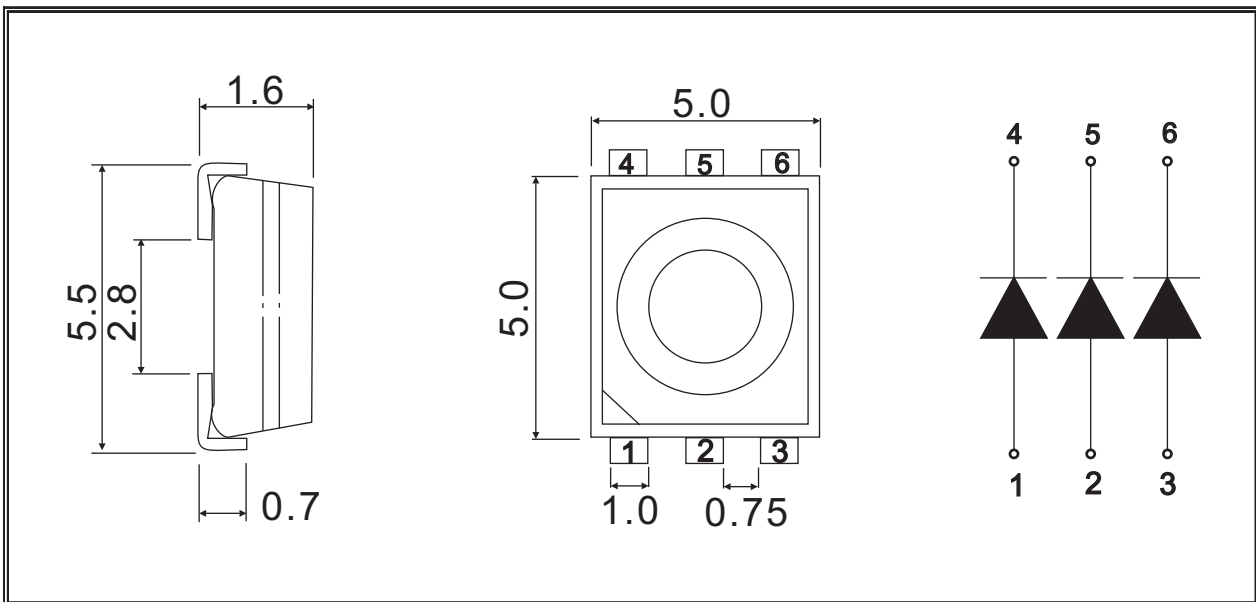
No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

DEVICES

Part Number	Lens		Source
	Color	Diffusion	Dice Source
HPTLB6-5xK05x	White	Diffusion	GaN/GaIn

PACKAGE DIMENSIONS



NOTE:

- 1.All dimensions are in millimeter.
- 2.specifications are subject to change without notice.
- 3.Tolerance is 0.3mm unless otherwise noted.

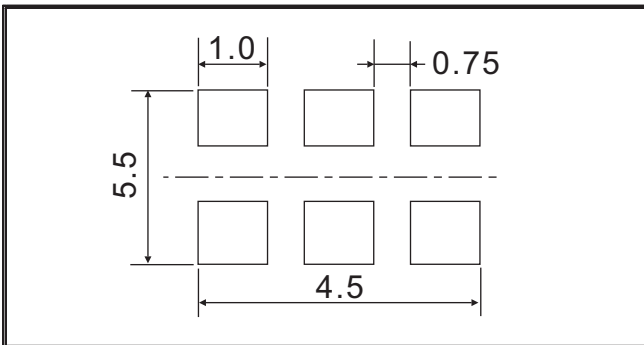


HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

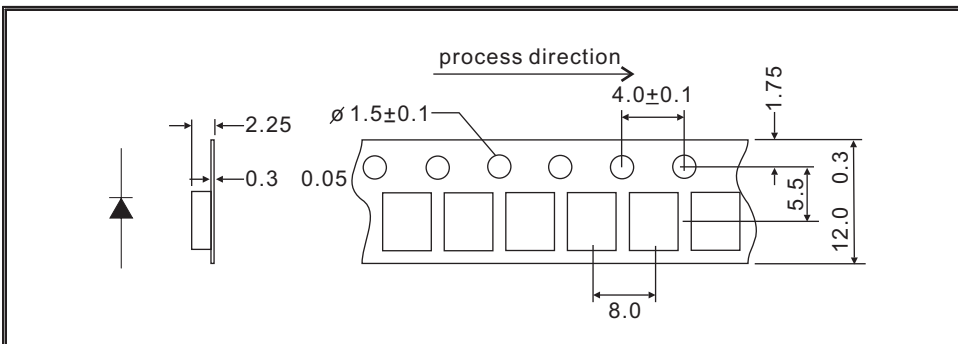
RECOMMENDED SOLDERING PATTERN



NOTE:

- 1.All dimensions are in millimeter.
- 2.specifications are subject to change without notice.

TAPE SPECIFICATIONS



NOTE:

- 1.All dimensions are in millimeter.
- 2.specifications are subject to change without notice.



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

ABSOLUTE MAXIMUM RATINGS

TA=25°C

PARAMETER	SYMBOL	MAX. RATING	UNIT
Power Dissipation	Pd	120	mW
Continuous Forward Current	IF	75	mA
Peak Forward Current *1	IFM	150	mA
Reverse Voltage	VR	5	V
Electrostatic Discharge (HBM)	ESD	2000	V
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +85	°C
Reflow Soldering (preheat 150-180°C 60-120sec, soldering temp 260°C 10sec)			

*1.Duty Ratio=0.1%,Pulse Width=10us.

*2.Iron soldering high temperature will not cause damage to the dice. But be aware of the high temperature will not only make the epoxy soften but also cause the lead moving and the gold wire broken and even open. So before returning to the normal temperatures PLEASE AVOID any serious pressure on the top of epoxy and lead.



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

ELECTRIC-OPTICAL CHARACTERISTICS

TA=25°C

PARAMETER	SYMBOL	TEST CONDITION	TYP	MAX	UNIT
View Angle of Half Power	2θ _{1/2}	IF=60mA	120		deg
Thermal Resistance Junction To Case	R _{θ J-C}		15		°C/W
Thermal Resistance Junction To Case With Star Type Heat Sink	R _{θ J-C}		20		°C/W
Temperature Coefficient Of Forward Voltage	ΔV _F /ΔT		-2		mV/°C

ELECTRIC-OPTICAL CHARACTERISTICS FOR FORWARD VOLTAGE

TA=25°C

Item	Symbol	Test Condition	Typ	Max	Unit
HPTLB6-53K05G	VF	IF=60mA	6.3	6.8	V
HPTLB6-54K05Y			4.5	5.0	
HPTLB6-55K05R			4.3	4.8	
HPTLB6-58K05B			6.3	6.8	



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

ELECTRIC-OPTICAL CHARACTERISTICS FOR LUMINOUS INTENSITY

Item	Symbol	Test Condition	Min	Typ	Unit
HPTLB6-53K05G	Green	IV IF=60mA		4000	mcd
HPTLB6-54K05Y	Yellow			2600	
HPTLB6-55K05R	Red			2700	
HPTLB6-58K05B	Blue			1900	

ELECTRIC-OPTICAL CHARACTERISTICS FOR WAVELENGTH

Item	Test Condition	λ_p	λ_d	Unit
HPTLB6-53K05G	IF=60mA	520	525	nm
HPTLB6-54K05Y		595	590	
HPTLB6-55K05R		635	625	
HPTLB6-58K05B		462	465	



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

RELIABILITY TEST

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	Connect with a power if=60mA Ta=Under room temperature Test Time=1,000hrs	0/22
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	Ta=+85°C 5°C RH=90% ~ 95% Test Time=1000hrs	0/22
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High Ta=+85°C 5°C Test Time=1,000hrs	0/22
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-40°C 5°C Test Time=1,000hrs	0/22
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	-40°C ~ +25°C ~ +85°C ~ +25°C 60min 20min 60min 20min Test Time=200cycle	0/22
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010	-40°C 5°C ~ +85°C 5°C 20min 20min Test Time=200cycle	0/22

*Failure Criteria:

1. VF arise \geq 10%
2. IV decline \geq 30%
3. A failure is an LED that is open or shorted

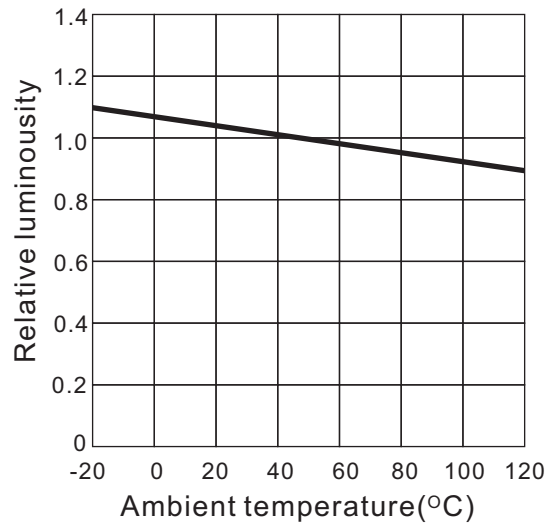
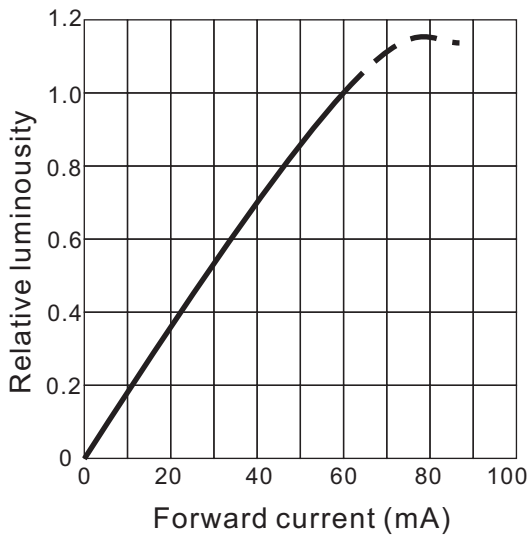
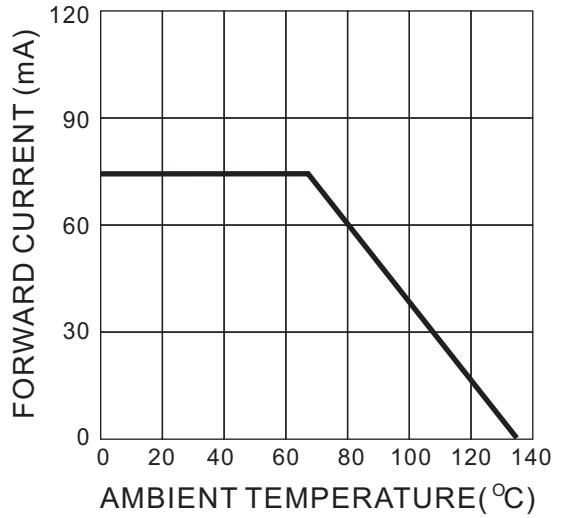
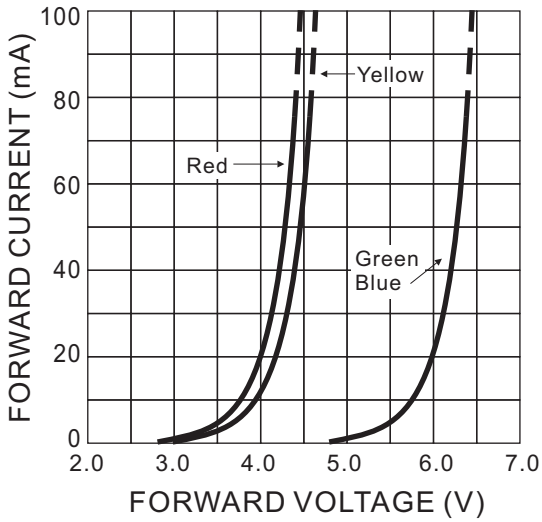


HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

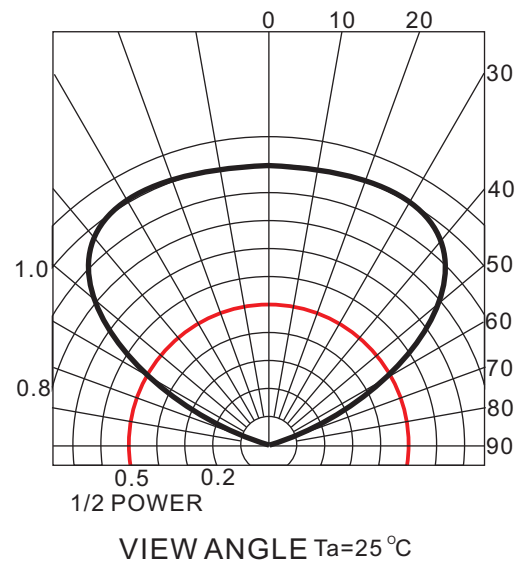
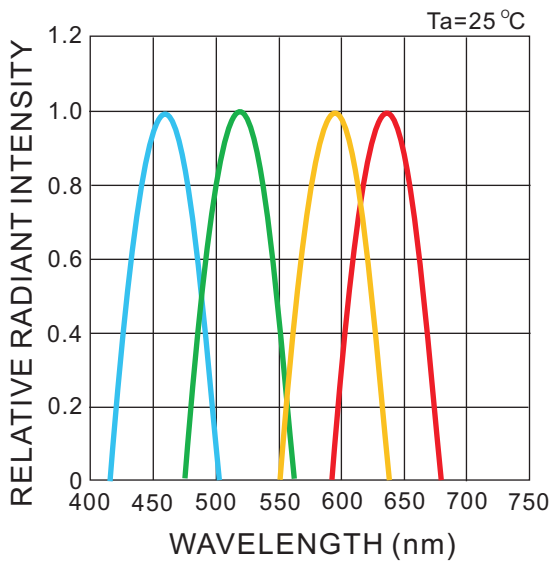
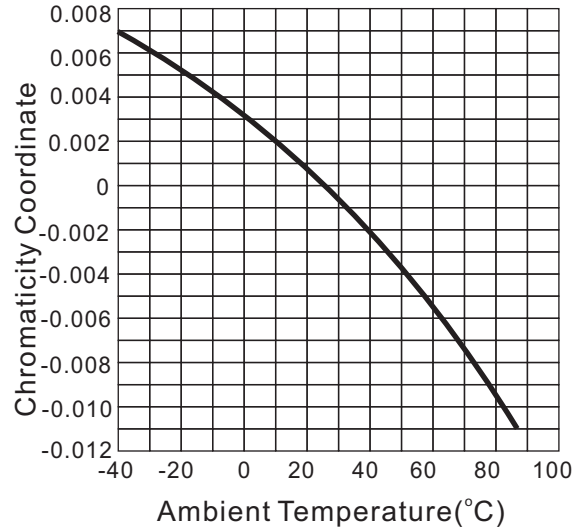
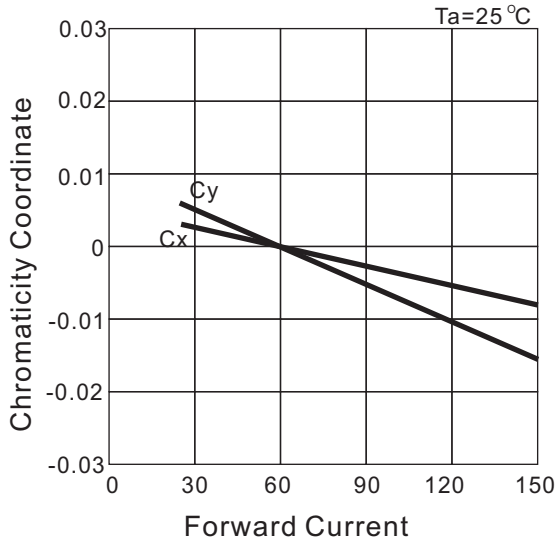


HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

Brightness Bin Selection

0.5W Green Color

Brightness Code		
BIN CODE	Brightness in mcd	
	Minimum	Maximum
T	2500	3200
U	3200	4200
V	4200	5500

0.5W Yellow Color

Brightness Code		
BIN CODE	Brightness in mcd	
	Minimum	Maximum
S	1900	2500
T	2500	3200
U	3200	4200

0.5W Red Color

Brightness Code		
BIN CODE	Brightness in mcd	
	Minimum	Maximum
S	1900	2500
T	2500	3200
U	3200	4200

0.5W Blue Color

Brightness Code		
BIN CODE	Brightness in mcD	
	Minimum	Maximum
Q	1150	1500
R	1500	1900
S	1900	2500

NOTE:

1. Test Condition at IF=60mA.



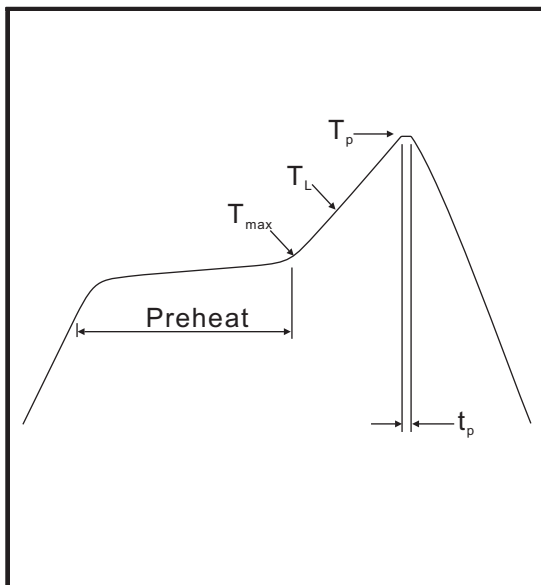
HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

Reflow Solder Condition For Emitter Type

Profile Feature	Sn-Pb Eutectic Assembly	Lead-Free Assembly
Average Ramp-Up Rate (T_{max} To T_p)	3 °C/sec max	3 °C/sec max
Average Ramp-Down Rate	6 °C/sec max	6 °C/sec max
Preheat		
Temperature Min	100 °C	150 °C
Temperature Max	150 °C	200 °C
Time	60-120sec	60-180sec
Time Maintained Above		
Temperature (T_L)	180 °C	210 °C
Time Max	150sec	150sec
Peak Temperature (T_p)	240 °C	260 °C
Time Within 5°C of Actual Peak Temperature (t_p)	10 ~ 30sec	20 ~ 40sec



Note:

- 1.All temperature regarding topside of the package, measured on the package body surface.
- 2.After the LEDs have been soldered repairing should not be done. When repairing is unavoidable, a heat plate should be used. It should be confirmed beforehand whether the characteristics of LEDs will or will not be damaged by repairing.
- 3.Reflow soldering more than two times is not recommended.
- 4.While soldering do not put stress on the LEDs during heating.
- 5.After soldering do not warp the circuit board.



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

Remarks:

1. Brightness values are measured during a current pulse of typical 25 ms, the brightness tolerance is $\pm 15\%$.
2. Dominant wavelength are measured during a current pulse of typical 200 ms, the chromaticity tolerance is $\pm 1.0\text{nm}$.
3. Forward voltage are measured during a current pulse of typical 5 ms, the VF tolerance is $\pm 0.15\text{V}$.
4. Dimensions are specified as follows: mm.
5. Related technical parameters of LED are average value resulted from statistic. The actual parameters of LED could be slightly different from average and characteristic curve.
6. The average value of LED will be changed by technical improvement and elevation, and subject to change without prior notice.
7. Hi-Power LED can not be operated without second heat dissipating structure.
8. Poor or damaged second heat dissipating structure could lead to defective electrical characteristic of High Power LED, CCT escalation, brightness drop, lifetime shortening or burn out. Following instructions of Huey Jann Hi-Power LED series document can avoid LED burn out and electrical defectiveness due to improper usage and maintain normal performance of the products.



HUEY JANN ELECTRONICS INDUSTRY CO., LTD.

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125